

IN THE CLAIMS

Please amend claims 1 through 3 and 5 through 17 by this amendment as follows:

1 1. (Currently Amended) A label switching router having an internal channel share
2 function over an asynchronous transfer mode, comprising:

3 an ingress forwarding engine adapted to set up a label switched path by using a
4 signaling protocol, extract an egress forwarding engine number of an egress forwarding
5 engine and an ~~internal~~ egress channel identifier that identifies an egress channel, allocate
6 an extension tag that comprises said egress forwarding engine number and said egress
7 channel identifier, search a previously-set internal channel that connects the ingress
8 forwarding engine to the egress forwarding engine, form a forwarding information
9 base/label information base ~~comprising the~~ that comprises the extension tag and a
10 previously-set internal channel identifier that identifies said previously-set internal
11 channel, and the extension tag, add a header having the previously-set internal channel
12 identifier and the extension tag to a received ~~internet protocol~~ Internet Protocol (IP)
13 packet by referring to the forwarding information base/label information base, and
14 forward the ~~internet protocol~~ IP packet; and

15 a merging unit adapted to receive label switched path set information from ~~a peer~~
16 the ingress forwarding engine, form an extension information base/merging table
17 [[where]] wherein an internal the egress channel identifier is mapped to [[an]] the
18 extension tag, perform merging [[when]] upon receiving [[an]] the internet protocol IP

1 packet having the extension tag, extract the extension tag, ~~mapping map~~ the extension tag
2 to the ~~internal~~ egress channel identifier, and forward the ~~internet protocol~~ IP packet to an
3 ~~internal~~ the egress channel ~~having the mapped internal channel identifier~~.

1 2. (Currently Amended) The label switching router of claim 1, the ingress
2 forwarding engine being controlled by a main control unit, the main control unit being
3 programmed and configured to set up the label switched path by using the signaling
4 protocol, extract the egress forwarding engine number and the previously-set internal
5 channel identifier stored in the forwarding information base/label information base,
6 allocate the extension tag according to the set label switched path, and store the
7 previously-set internal channel identifier and the allocated extension tag in the
8 forwarding information base/label information base, wherein the ingress forwarding
9 engine comprises:

10 the forwarding information base/label information base for storing and managing a
11 destination ~~internet protocol~~ IP address, the previously-set internal channel identifier, the
12 extension tag and a label;

13 an SAR receiving unit for reassembling the received ~~internet protocol~~ IP packet,
14 and outputting the reassembled ~~internet protocol~~ IP packet;

15 a lookup control unit for adding the header having the previously-set internal
16 channel identifier, the extension tag and the label to the ~~internet protocol~~ IP packet by
17 referring to the forwarding information base/label information base, and outputting the

18 ~~internet protocol~~ IP packet; and

19 an SAR transmitting unit receiving the ~~internet protocol~~ IP packet having the
20 previously-set internal channel identifier and the extension tag from the lookup control
21 unit, confirming the previously-set internal channel identifier, and forwarding the
22 ~~internet protocol~~ IP packet to the previously-set internal channel identifier.

1 3. (Currently Amended) The label switching router of claim 1, the merging unit
2 being controlled by a main control unit, the main control unit being programmed and
3 configured to receive the label switched path set information from the ~~[[peer]]~~ ingress
4 forwarding engine, and form the extension information base/merging table where the
5 ~~internal~~ egress channel identifier is mapped to the extension tag, wherein the merging
6 unit comprises:

7 an extension information base/merging table mapping the ~~internal~~ egress channel
8 identifier to the extension tag, and storing the mapped ~~internal~~ egress channel identifier;

9 an SAR receiving unit reassembling the received IP packet, and outputting the
10 reassembled ~~internet protocol~~ IP packet;

11 a lookup control unit programmed and configured to add the header having the
12 ~~internal~~ egress channel identifier mapped to the extension tag to the ~~internet protocol~~ IP
13 packet by referring to the forwarding information base/label information base, and output
14 the ~~internet protocol~~ IP packet; and

15 an SAR transmitting unit confirming the ~~internal~~ egress channel identifier in the

16 lookup control unit, and forwarding the ~~internet protocol~~ IP packet to the ~~internet~~ egress
17 channel ~~identifier~~.

1 4. (Original) The router of claim 1, the extension tag being indicative of a
2 destination IP address from the merging unit.

1 5. (Currently Amended) The router of claim 1, wherein packets originating from
2 different sources and going to a common destination handled by the router are transferred
3 to said common destination via a single previously-set internal channel.

1 6. (Currently Amended) The router of claim 5, said single previously-set internal
2 channel is shared by packets from different sources to transmit packets to said common
3 destination.

1 7. (Currently Amended) The router of claim 5, wherein only one previously-set
2 internal channel is ~~[[used]]~~ allocated to deliver packets to a given destination handled by
3 said router.

1 8. (Currently Amended) The router of claim 1, where only one previously-set
2 internal channel is used to handle all packets of said router having a common extension
3 tag.

1 9. (Currently Amended) A method ~~[[for]]~~ of sharing ~~[[an]]~~ a previously-set
2 internal channel by using a label switching router over an asynchronous transfer mode,
3 the method comprising:

4 setting up a label switched path by using a signaling protocol, extracting an egress
5 forwarding engine number that identifies an egress forwarding engine and ~~[[a]]~~ an egress
6 channel identifier that identifies an egress channel, allocating an extension tag that
7 comprises the egress forwarding engine number and the egress channel identifier, and
8 forming a forwarding information base/label information base by using ~~[[a]]~~ the
9 previously-set internal channel by an ingress forwarding engine, the previously-set
10 internal channel connecting the ingress forwarding engine to the egress forwarding
11 engine;

12 adding a header ~~having~~ comprising the extension tag and a previously-set internal
13 channel identifier that identifies said previously-set internal channel ~~and extension tag~~ to
14 a received ~~internet protocol~~ Internet Protocol (IP) packet by referring to the forwarding
15 information base/label information base, and forwarding the ~~internet protocol~~ IP packet
16 by the ingress forwarding engine;

17 receiving label switched path set information from ~~a peer~~ the ingress forwarding
18 engine, and forming an extension information base/merging table where an ~~internal~~
19 egress channel identifier is mapped ~~in an~~ the extension tag at a merging unit; and

20 forwarding ~~[[a]]~~ the received ~~internet protocol~~ IP packet having the extension tag

21 to ~~an internal~~ the egress channel ~~having the internal channel identifier mapped to the~~
22 ~~extension tag~~ by referring to the extension information base/merging table at the merging
23 unit.

1 10. (Currently Amended) The method of claim 9, wherein the setting up a label
2 switched path by using a signaling protocol, extracting ~~[[an]]~~ the egress forwarding
3 engine number and ~~[[a]]~~ the egress channel identifier, allocating ~~[[an]]~~ the extension tag,
4 and forming ~~[[a]]~~ the forwarding information base/label information base by using ~~[[a]]~~
5 the previously-set internal channel by ~~[[an]]~~ the ingress forwarding engine ~~[[step]]~~
6 comprises:

7 ~~setting up the label switched path by using the signaling protocol;~~
8 ~~extracting the egress forwarding engine number and the egress channel identifier;~~
9 ~~and allocating the extension tag; and~~

10 searching the previously-set internal channel, ~~and forming~~ the forwarding
11 information base/label information base ~~having~~ comprising the previously-set internal
12 channel identifier and the extension tag.

1 11. (Currently Amended) The method of claim 9, wherein the adding a header
2 having the previously-set internal channel identifier and the extension tag to a received
3 ~~internet protocol~~ IP packet by referring to the forwarding information base/label
4 information base, and forwarding the ~~internet protocol~~ IP packet by the ingress

forwarding engine step comprises:

reassembling the received IP packet, and outputting the reassembled ~~internet protocol~~ IP packet;

adding the header having the previously-set internal channel identifier, the extension tag and the label to the ~~internet protocol~~ IP packet by referring to the forwarding information base/label information base ; and

confirming the previously-set internal channel identifier, and forwarding the ~~internet protocol~~ IP packet to the previously-set internal channel identifier.

12. (Currently Amended) The method of claim 9, wherein the forwarding a received ~~internet protocol~~ IP packet having the extension tag to an ~~internal~~ egress channel having the ~~internal~~ egress channel identifier mapped to the extension tag by referring to the extension information base/merging table at the merging unit step comprises:

performing merging ~~when an internet protocol~~ upon receipt of the IP packet having the extension tag ~~is received~~;

extracting the extension tag, and mapping it to the ~~internal~~ egress channel; and

forwarding the ~~internet protocol~~ IP packet to the ~~internal~~ egress channel having the mapped ~~internal~~ egress channel identifier.

13. (Currently Amended) The method of claim 9, the extension tag being

2 indicative of the ~~internal~~ egress channel the ~~internet protocol~~ IP packet is forwarded to
3 from the merging unit.

1 14. (Currently Amended) The method of claim 9, only one previously-set internal
2 channel is used to deliver all packets to a common destination.

1 15. (Currently Amended) The method of claim 9, only one previously-set internal
2 channel is set up to deliver packets having a common extension tag.

1 16. (Currently Amended) The method of claim 9, only one previously-set internal
2 channel is used to deliver packets to a single destination, even when the packets originate
3 from diverse ingress forwarding engines in the label switching router.

1 17. (Currently Amended) The method of claim 9, only one previously-set internal
2 channel is set up and serves as an only path to deliver packets from a plurality of ingress
3 forwarding engines in the label switching router to a single destination in the label
4 switching router.